



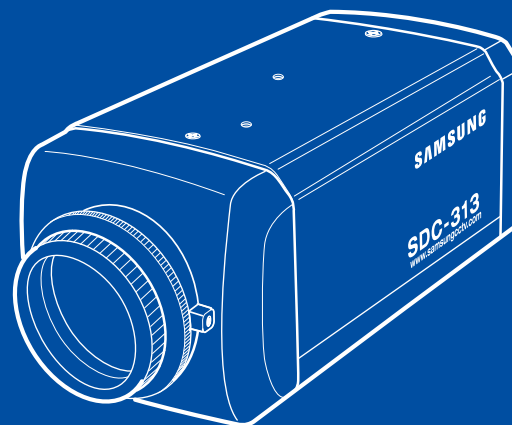
COLOR CCD CAMERA

INSTRUCTION MANUAL

# SDC-313 SERIES SDC-243 SERIES

## About this manual

Before installing and using the camera, please read this manual carefully. Be sure to keep it handy for later reference.



## SALES NETWORK

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SAMSUNG CCD CAMERA

Thank you for purchasing a **SAMSUNG CCD CAMERA**. Before operating the camera, confirm the camera model and proper input power voltage. In order that you can understand this manual thoroughly, we'll introduce our model description.

#### ■SDC-313 Series (410,000 pixels)

- |               |              |
|---------------|--------------|
| • NTSC models | • PAL models |
| SDC- 313ND    | SDC- 313PD   |
| SDC- 313NA    | SDC- 313PA   |


#### ■SDC-243 Series (270,000 pixels)

- |               |              |
|---------------|--------------|
| • NTSC models | • PAL models |
| SDC- 243ND    | SDC- 243PD   |
| SDC- 243NA    | SDC- 243PA   |

#### ■Model Description

SDC- 313 x x  
SDC- 243 x x

Power Source  
Signal System

- Signal System  
N → NTSC Model  
P → PAL Model
- Power Source  
D → DC 12V   
A → AC 24V ~

**WARNING- TO PREVENT ELECTRIC SHOCK AND RISK OF FIRE HAZARDS,  
DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.**

**INFORMATION** - This equipment has been tested and found to comply with limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.

Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

**WARNING** - Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

**CAUTION** - To prevent electric shock and risk of fire hazards:

- ◆ Do NOT use power sources other than that specified.
- ◆ Do NOT expose this appliance to rain or moisture.

This installation should be made by a qualified service person and should conform to all local codes.

## High Resolution

The horizontal resolution of 480 TV lines can be achieved by using a high density CCD having effective 410,000 pixels, which provides clean, noiseless and reliable pictures. (SDC-243 series have 270,000 pixel and can achieve 330 TV lines)

## Video/DC Selection Switch

The camera accepts 2 types of auto Iris lenses (DC type/Video type) and is set with Video / DC selection switch.

## Electronic Iris

Electronic iris shutter is automatically controlled at the speed of 1/60~1/120,000sec (NTSC models), 1/50~1/120,000sec (PAL models).

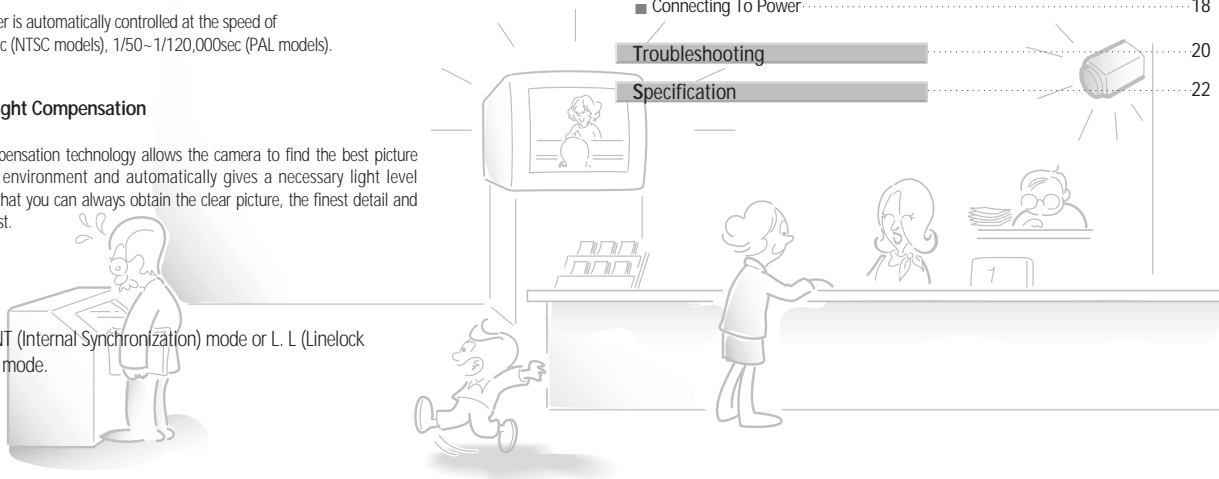
## Excellent Backlight Compensation

The backlight compensation technology allows the camera to find the best picture conditions in any environment and automatically gives a necessary light level compensation, so that you can always obtain the clear picture, the finest detail and perfect light contrast.

## SYNC. System

You can select INT (Internal Synchronization) mode or L. L (Line-lock Synchronization) mode.

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## Precautions

**Do not install the camera in extreme temperature conditions.**



Only use the camera under conditions where temperatures are between  $-10^{\circ}\text{C}$  and  $+50^{\circ}\text{C}$ . Be especially careful to provide ventilation when operating under high temperatures.

**Do not install or use the camera in an environment where the humidity is high.**



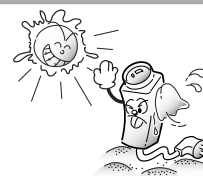
It can cause the image quality to be poor.

**Do not drop the camera or subject them to physical shocks.**



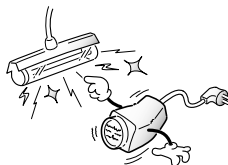
It can cause malfunctions to occur.

**Never keep the camera face to strong light directly.**



It can damage the CCD.

**Do not install the camera under unstable lighting conditions.**



Severe lighting change or flicker can cause the camera to work improperly.

**Do not touch the front lens of the camera.**



It is one of the most important parts of the camera. Be careful not to be stained by fingerprint.

**Do not expose the camera to rain or spill beverage on it.**



If it gets wet, wipe it dry immediately. Liquids can contain minerals that corrode the electronic components.

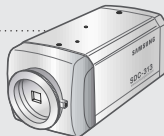


### Notes

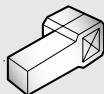
- If the camera is exposed to spotlight or object reflecting strong light, smear or blooming may occur.
- Please check that the power satisfies the normal specification before connecting the camera.

## Composition

1. Color CCD Camera SDC-313(243).....



2. Auto Iris Lens Plug.....



3. L-Wrench.....



4. Instruction Manual.....

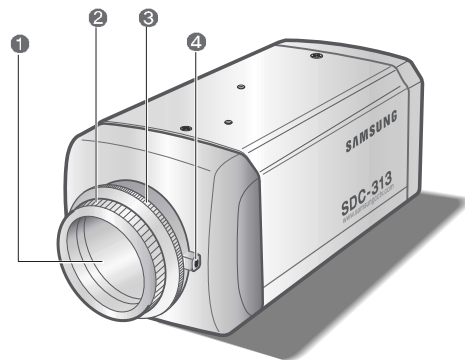


5. C-Mount Adaptor.....



## Name and Function of Each Part

### Front



#### ① Glass Protecting Cap

Be sure to cap the lens mount when the lens is not mounted. Pull out the cap to remove.

#### ② C- Mount Lens Adaptor

Used to attach a C - mount lens.

#### ③ CS-Mount Lens Adaptor

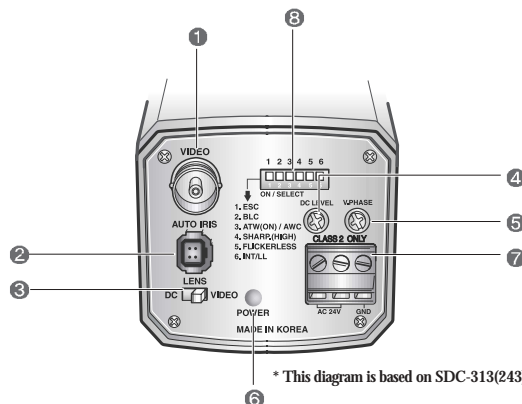
Used to attach a CS - mount lens. C-mount lens can be used when the C- mount adaptor is attached, and CS- mount lens can be used when it is removed.

#### ④ CS-Mount Holding Screw

Used to readjust back focus of the camera. There are two back focus lock screws. These must be loosened before the camera may be back focused. Loosen the lock screws using the L- wrench to turn the CS-mount lens adaptor, and tighten the lock screws after adjustment.

## Name and Function of Each Part

### Back



\* This diagram is based on SDC-313(243)NA/PA

#### 1 Video Out Jack

Connect to the video input connector of monitor. This jack outputs a composite video signal. Use a coaxial cable for connection.

#### 2 Auto Iris Lens Connector

Used to connect auto iris lens plug.

#### 3 Auto IRIS Lens Selection Switch

Used to choose DC or VIDEO mode according to the type of your lens.

##### •Using Auto Iris Lens

You can choose DC or VIDEO mode according to the type of the lens. In this case, electronic shutter is fixed in '1/60'sec (NTSC models), '1/50'sec (PAL models).

#### Notes

- Using auto iris lens, you must select 'OFF' of the ESC selection switch.

#### •Using Manual Lens

Using manual lens, you can choose any switch selection. When the switch is set to 'OFF' in ESC mode, the electronic shutter is fixed in '1/60'sec (NTSC models), '1/50'sec (PAL models). When the switch is set to 'ON' in ESC mode, the electronic shutter automatically controls the shutter speed from '1/60' to '1/120,000'sec (NTSC models), '1/50' to '1/120,000'sec (PAL models).

#### 4 DC Level Adjustment V.R

Used to adjust video output level of DC driven auto iris lens. When the brightness control of the monitor does not operate correctly, you can get the optimum picture by controlling the DC level of camera.

Monitor Picture	Adjustment direction	Monitor Picture	Adjustment direction
To make it brighter	Turn clockwise ↻	To make it darker	Turn counterclockwise ↻

#### Notes

- You must select 'OFF' of the ESC selection switch if you want to adjust DC level adjustment V. R.

#### 5 V. PHASE Adjustment V.R: AC type

If the camera is to be used in the LL mode, the vertical phase may require adjustment to synchronize the vertical phase of the camera with other camera in the system. Make this adjustment when the vertical phase of the camera does not match with other cameras or systems. For correct adjustment, use a multi - channel oscilloscope. The V. PHASE adjustment can be readjusted in the range of 0 to 270 degrees.

#### Notes

- This adjustment is necessary only when linelock is performed.
- There is no V. PHASE adjustment VR on the rear of DC power type.

## Name and Function of Each Part



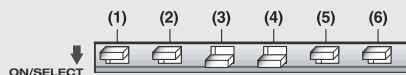
### ⑥ Power Lamp

The power lamp turns on when power is properly supplied.

### ⑦ Power Input Terminal

Used to connect AC/DC power source.

### ⑧ Function Selection Switch



\* Use the select switches on the rear of camera.



#### Notes

- Default setting is subject to change without notice.
- If the camera is DC power type, you can not use LL mode.

### (1) ESC ON/OFF Switch

You can activate the ESC(Electronic Shutter Control) function. For details, refer to 'Auto IRIS Lens Selection Switch.'



#### Notes

- Using auto iris lens, you must select 'OFF' of the ESC ON/OFF switch.

### (2) BLC(Backlight Compensation) ON/OFF Switch

This switch improves an image that is darkened because of backlighting. When the lighting source is in the rear of an object, the object might be seen somewhat dark. If you want to see the object clearly, turn this switch ON. The effective area where backlight compensation is activate is fixed in the center of the screen.

### (3) White Balance Control Mode

- ATW(Auto Tracing White balance; ON): The camera automatically controls the white balance in any environment.

- AWC(Auto White balance Control; OFF): The white balance is automatically adjusted in a specific environment.

### (4) Sharpness

The switch emphasize the sharpness. To soften the edge turn this switch off.

### (5) Flickerless: SDC-313 Series

Flickerless function. In this function, electronic shutter is fixed in 1/100sec (1/120sec: PAL model). FL function can compensate the flicker caused by power frequency, but set OFF in the area not using a 60Hz (50Hz: PAL model) AC Power.

### (6) INT/LL Switch: AC type

Used to choose INT or LL mode.

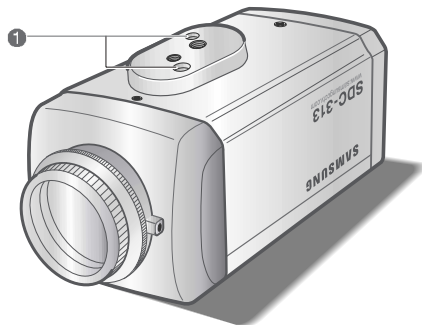
- INT(Internal) mode : The camera may be operated independently with its internal crystal control.
- LL(Linelock) mode : It synchronizes the video signal between cameras using the frequency of the AC power supply without external synchronous generator.



#### Notes

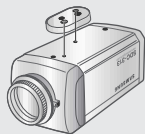
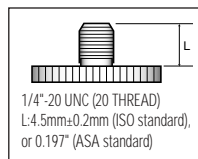
- The LL mode can be used in the areas of 60Hz(NTSC models), 50Hz(PAL models).
- There is no SYNC mode selection switch on the rear of DC power type.
- In case of NTSC model in using manual lens, the color tone could be oscillated under indoor fluorescent light.
- To avoid this situation, we kindly recommend auto iris lens to you and set to 'OFF' in ESC mode.

## Bottom



### ① Tripod Mounting Hole

Used to install the camera on an optional tripod. The tripod must be equipped with the screw specified as shown below.



You can remove and install this bracket on the top of the camera. You must use the supplied screw or the equivalent (within 5mm). If not, the bracket may not be fixed properly.

## ■ LENS

The lens is not supplied with this camera. Purchase a lens suitable for your environment. This camera accepts the auto iris lens and both C-and CS-mount lens.

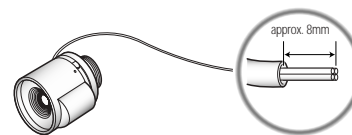


### Notes

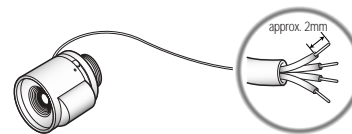
- If the lens is marked with fingerprints or other marks, the image quality might be poor.
- It is recommended to use a high quality lens to improve the image quality under low illumination.
- For using main functions it is recommended to use Auto Iris Lens with DC type.

## Installing Auto Iris Lens

1. Peel approximately 8mm from the end of the lens cable outer cover.



2. Peel approximately 2mm from the end of the cable inner cover.



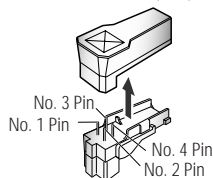


## Connection

3. Remove the cover from the iris lens plug supplied, and solder the lens cable to the plug as shown below.

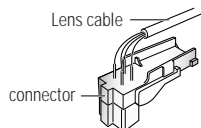
• **Video type :**

- No. 1 Pin --- Red (Power source)
- No. 2 Pin --- N.C
- No. 3 Pin --- White (Video signal)
- No. 4 Pin --- Black (GND)

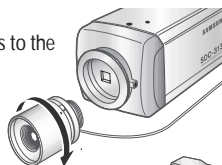


• **DC type :**

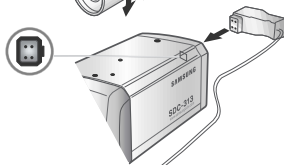
- No. 1 Pin --- Damping -
- No. 2 Pin --- Damping +
- No. 3 Pin --- Drive +
- No. 4 Pin --- Drive -



4. Remove the protective cap, and attach the lens to the camera by turning clockwise.



5. Connect the lens plug to the auto iris connector on the right side of the camera.

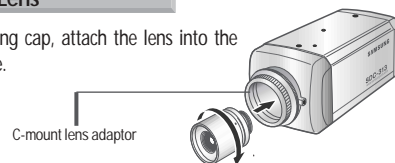


6. Set the DC/VIDEO selection switch to DC or VIDEO according to the type of the lens.



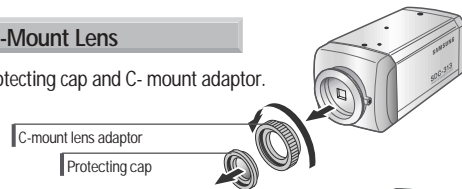
### Installing C-Mount Lens

After removing the protecting cap, attach the lens into the camera by turning clockwise.

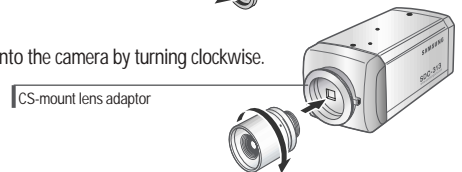


### Installing CS-Mount Lens

1. Remove the protecting cap and C-mount adaptor.

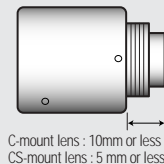


2. Attach the lens into the camera by turning clockwise.



### Notes

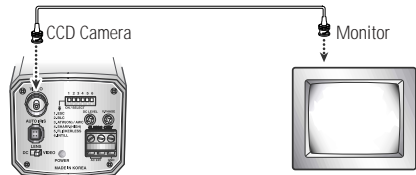
- Use the lens under the specification as shown. Otherwise the lens can damage the camera or abnormal fixing may result.
- A heavy lens may disturb the balance with the camera and possibly result in damage. Don't use a lens heavier than 450g.
- It is recommended to set the lens ALC mode to Av mode (Average). Pk mode can be occurred hunting.



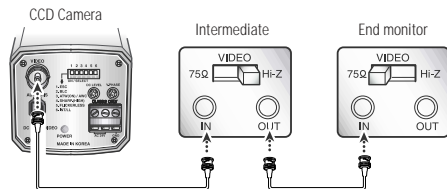
## Connection

### ■ Connecting to Monitor

Connect the VIDEO out jack to the monitor video in jack.



- As the connecting method varies with the instruments, refer to the manual supplied with the instrument.
- Connect the cable after power is turned off.
- Set the 75Ω / Hi-Z selection switch as shown below if you have an intermediate device.

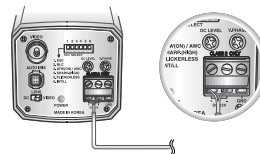


### ■ Connecting to Power

Each model has different power specification, please check the name of the model and power specification before connecting to power source. Please refer to the sticker identifying the model, which is attached on the product, for power specification.

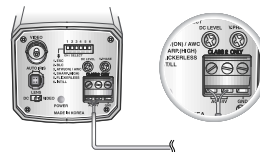
#### For DC Power Type

- The wire is polarized. Be sure to connect the wire that white line is on covering to '-' terminal and connect the other one to '+' terminal.
- Use DC 12V power source for SDC-313(243)ND / PD



#### For AC Power Type

- The wire is non-polarized.
- Use AC 24V ~ 60Hz power source for SDC-313(243)NA.
- Use AC 24V~50Hz power source for SDC-313(243)PA



#### Notes

- Be sure to connect power after all the installation is done.
- Note that AC adaptor is not supplied with camera.
- Use only AC 24V UL listed class 2 power supply.
- Since the wire of DC power type is polarized, be careful when connecting it.
- Do not use power sources other than that specified.

## Troubleshooting

If you have trouble operating your camera, refer to the following table. If the guidelines do not enable you to solve the problem, contact an authorized technician.

Problem	Solution
Nothing appears on the screen.	<ul style="list-style-type: none"> <li>• Check that the power cord and line connection between the camera and monitor are fixed properly.</li> <li>• Check that you have properly connected VIDEO cable to the camera VIDEO output jack.</li> <li>• Check that the DC/VIDEO selection switch on the side of the camera is set to a proper position according to the type of your auto iris lens.</li> <li>• Are you using Auto Iris Lens with VIDEO type? Adjust VR Level properly (refer to page 10)</li> </ul>
The image on the screen is dim.	<ul style="list-style-type: none"> <li>• Is lens stained with dirt? Clean your lens with soft, clean cloth.</li> <li>• Set the monitor to proper condition.</li> <li>• If the camera is exposed to too strong light, change the camera position.</li> <li>• Adjust the lens' focus properly.</li> </ul>
The image on the screen is dark.	<ul style="list-style-type: none"> <li>• Adjust the contrast feature of the monitor.</li> <li>• If you have an intermediate device, set the 75<math>\Omega</math> / Hi-z properly. (refer to page 18)</li> <li>• Are you using the Auto Iris Lens? Adjust the level on the lens properly.</li> </ul>
The camera is not working properly, and the surface of the camera is hot.	<ul style="list-style-type: none"> <li>• Check that you have properly connected the camera to an appropriate power source. (refer to page 19)</li> </ul>

Problem	Solution
The image on the screen flickers.	<ul style="list-style-type: none"> <li>• Is the camera facing to direct sunlight or fluorescent lighting? Change the camera position.</li> <li>• Are you using Auto Iris Lens? Check that you have properly connected the lens plug to the Auto Iris connector on the side of the camera.</li> </ul>
L/L mode isn't able to be selected.	<ul style="list-style-type: none"> <li>• Have you connected your camera to DC power source? Connect it to AC power source.</li> </ul>

## Specifications

Item	SDC-243NA	SDC-243ND	SDC-313NA	SDC-313ND
Power Source	AC 24V, 60Hz	DC 12V	AC 24V, 60Hz	DC 12V
Power Consumption	3.5W (Max)	2.5W (Max)	3.5W (Max)	2.5W (Max)
Synchronization	INT/LL Selectable (0-270° Adjustable)	INT	INT/LL Selectable (0-270° Adjustable)	INT
Image Pick-up Device	1/3" Color Interline-Transfer CCD			
Total Pixels	542(H) x 492(V)		816(H) x 494(V)	
Effective Pixels	512(H) x 492(V)		771(H) x 492(V)	
Scanning	2:1 Interlace			
Min. Illumination	0.3Lux / F1.0		0.5Lux / F1.0	
Resolution	330 TV Line		480 TV Line	
Video Output	VBS ; 1Vp-p, 75Ωunbalanced			
Scanning Frequency	15.734KHz(H) / 60Hz (V)			
Electronic Shutter (ESC)	ON / OFF Selectable (ON: 1/60-120,000sec, OFF: 1/60sec)			
AGC	Built in			
White Balance	ATW / AWC Selectable			
BLC Function	ON / OFF Selectable			
Sharpness	High / Normal Selectable			
Flickerless	Not used	ON / OFF Selectable (ON: 1/100)		
Auto Iris	VIDEO / DC Iris Selectable (DC Iris Level Adjustable)			
Lens Mount	C / CS Mount			
S/N Ratio	more than 48dB (weight ON)			
Operating Temperature	-10℃ ~ +50℃ / 30% ~ 90%RH			
Dimention	58(W) x 52(H) x 121(D)mm			
Weight (Without Lens)	300g	280g	300g	280g

\* Design and specifications are subject to change without notice


Item	SDC-243PA	SDC-243PD	SDC-313PA	SDC-313PD
Power Source	AC 24V, 50Hz	DC 12V	AC 24V, 50Hz	DC 12V
Power Consumption	3.5W (Max)	2.5W (Max)	3.5W (Max)	2.5W (Max)
Synchronization	INT/LL Selectable (0-270° Adjustable)	INT	INT/LL Selectable (0-270° Adjustable)	INT
Image Pick-up Device	1/3" Color Interline-Transfer CCD			
Total Pixels	542(H) x 582(V)		798(H) x 584(V)	
Effective Pixels	512(H) x 582(V)		753(H) x 582(V)	
Scanning	2:1 Interlace			
Min. Illumination	0.3Lux / F1.0		0.5Lux / F1.0	
Resolution	330 TV Line		480 TV Line	
Video Output	VBS ; 1Vp-p, 75Ωunbalanced			
Scanning Frequency	15.625KHz(H) / 50Hz (V)			
Electronic Shutter (ESC)	ON / OFF Selectable (ON: 1/50-120,000sec, OFF: 1/50sec)			
AGC	Built in			
White Balance	ATW / AWC Selectable			
BLC Function	ON / OFF Selectable			
Sharpness	High / Normal Selectable			
Flickerless	Not used	ON / OFF Selectable (ON: 1/120sec)		
Auto Iris	VIDEO / DC Iris Selectable (DC Iris Level Adjustable)			
Lens Mount	C / CS Mount			
S/N Ratio	more than 48dB (weight ON)			
Operating Temperature	-10℃ ~ +50℃ / 30% ~ 90%RH			
Dimension	58(W) x 52(H) x 121(D)mm			
Weight (Without Lens)	300g	280g	300g	280g

\* Design and specifications are subject to change without notice

## DECLARATION OF CONFORMITY

Application of Council Directive(s)	89 / 336 / EEC
Manufacturer's Name	SAMSUNG TECHWIN CO., LTD
Manufacturer's Address	SAMSUNG TECHWIN CO., LTD 42, SUNGJU-DONG CHANGWON-CITY, KYUNGNAM, KOREA, 641-120
European Representative Name	
European Representative Address	
Equipment Type/Environment	CCTV Camera
Model Name	SDC-313PA / PD, SDC-243PA / PD
Beginning Serial NO.	S3600001
Year of Manufacture	2003. 6. 1
Conformance to	EN 50081-1 : 1992 EMC-Directive 89/336 EEC and 92/31/EEC EN 50130-4 : 1996

We, the undersigned, hereby declare that the equipment specified above conforms to the above Directive(s).

Manufacturer	SAMSUNG TECHWIN CO., LTD	Legal Representative in Europe
Signature		Signature
Full Name	YOUNG TAEK SON	Full Name
Position	QUALITY CONTROL MANAGER	Position
Place	CHANGWON, KOREA	Place
Date	2003. 6. 1	Date

MEMO

MEMO

MEMO